

Rice University
Department of Chemical and Biomolecular Engineering
CHBE 343 CHEMICAL ENGINEERING LAB I
Course Syllabus Fall 2018

[Schedule](#) 

Class schedule and location

Lectures:

Monday 1:00 to 2:30 pm in Abercrombie B209

Experimental Sessions:

Wednesday 1:00 to 4:00 pm in B114 Abercrombie Lab

Instructors

Dr. Rocio H. Doherty

Email: rdoherty@rice.edu

Office hours

By appointment: Abercrombie B146C

Jacob Arredondo

Lab Manager

Email: jha1@rice.edu

Office hours

By appointment: Abercrombie B146A

Prerequisites:

CHBE 390, CHBE 401, CHBE 411

Co-requisites:

CHBE 350

Course description

This course reinforces fundamental principles taught in prerequisite courses through hands-on experience in the design and execution of experiments with emphasis on

process scaling, instrumentation, experimental design, and technical writing.

Course objectives

- Demonstrate technical knowledge by formulating solutions to experimental problems and analyzing experimental data.
- Demonstrate the ability to design and execute experiments and analyze and interpret experimental results.
- Demonstrate the ability to design/scale-up equipment from laboratory data.
- Demonstrate the ability to identify, formulate, and solve engineering problems.
- Demonstrate knowledge of the impact of engineering on society.
- Demonstrate the ability to communicate effectively, using written and verbal formats.
- Demonstrate the ability to engage in lifelong learning.

Textbook

Rocio H. Doherty, Lecture Notes for Chemical Engineering Lab I: Fall 2018 Edition - Canvas, Modules Section.

Michael Alley, The Craft of Scientific Writing, Springer (1996) 3rd Edition ISBN- 0-387-94766-3

Michael Alley, The Craft of Scientific Presentations (2013) 2nd Edition ISBN- 978-1-4419-8278-0

References

Gregory S. Patience, Experimental Methods & Instrumentation for Chemical Engineers, 1st Edition, El Sevier (2013), ISBN-13: 978- 0444538048

Lucile Vaughan Payne, The Lively Art of Writing, Signet (1969), ISBN-13: 978-0451627124

Jack P. Holman, Experimental Methods for Engineers,
Seventh Edition, McGraw-Hill (2000)

Howard M. Kanare, Writing the Laboratory Notebook,
American Chemical Society (1985)

Academic integrity

Students are required to review and abide by the Rice Honor Code, which can be found at honor.rice.edu. It is the instructor's understanding and expectation that the student's signature on any test or assignment means that the student contributed to the assignment individually or as a team member and that he or she neither gave nor received unauthorized aid. All laboratory reports are treated the same as pledged exams. You may not consult with members of other teams in any way about your reports. You may not receive help from anyone outside of your team with the exception of the instructor and the TA's. You may not consult lab reports from previous CHBE lab courses. Failure to comply with this policy will be immediately reported to the Honor Council for further actions. This policy will be strictly enforced.

Safety Regulations

- You must wear the following Personal Protective Equipment (PPE) at all times while in the lab (no exceptions)
- Safety glasses/goggles
- Long sleeve laboratory coat
- Clothing that fully covers yourself to the ankle (pants are best). Long socks are required if part of the ankle or feet are uncovered.
- Closed-toe shoes with backs (full coverage shoes are best, high heels are prohibited)

- Based on the experiment or procedure, additional PPE such as gloves may be required. Laboratory gloves should only be worn inside the laboratory.
- Students will not be allowed to work the lab if they fail to meet these safety regulations
- A more detailed and comprehensive discussion of safety requirements can be found in the safety manual located in the modules section of Canvas. All students are required to read and be familiar with these requirements.

Attendance

Class attendance is mandatory. Students are expected to attend all lectures and lab sessions in the assigned section and time. Lateness to class is not acceptable. Being late or leaving class while the instructor is lecturing is impolite and disrupts the class; therefore, students are strongly encouraged to remain seated until the end of the lecture and leave only in the case of an emergency.

Missing a class will be counted as an absence, the only exceptions are:

- A previous commitment with a Rice sports team. If this is the case, the student should bring a note signed by the coach, specifying the date and time of the game.
- Medical and other unforeseen circumstances. If this is the case, the student should notify the instructor by email in advance. If you do not receive a return email confirming the agreement, you must contact the instructor by other means. The student is expected to submit a justification for their absence in writing. Those excused from class are still responsible for all handout and lecture materials.

Students are required to sign an attendance sheet prior to the end of each lecture session. This attendance sheet is governed by the Rice honor code policy. (See

honor.rice.edu.)

Each unexcused absence will result in a loss of five (5) percent of the total course grade. Three or more unexcused absences will lead to a failing grade in the course.

Reports

Reports will be due at the beginning of the class, according to the schedule. Reports will not be accepted if they are turned in at a different day/time.

Quizzes

A pre-lab quiz will be applied at the beginning of each experimental session. The quiz will contain important information about the procedure along with questions related to the safety of that particular experiment (4-5 questions per quiz.) The students will have to answer correctly to at least 2-3 of them, otherwise, s/he will be asked to leave the lab and a grade of zero will be assigned to that particular experiment. The grade obtained in the quiz will be also taken into account in the final grade. S/he will be allowed to contribute to the experimental report based on the information provided by the rest of the team.

Grading policy

Attendance to lectures	10 %
Quizzes	20 %
Participation in the experimental sessions	10 %
Reports	40 %
Final project: Written report and poster presentation	20

The final letter grade is determined as follows:

Grade	%	Grade	%
A+	≥ 97	C+	77.0 – 79.9
A	93.0 – 96.9	C	73.0 – 76.9
A-	90.0 – 92.9	C-	70.0 – 72.9
B+	87.0 – 89.9	D+	67.0 – 69.9
B	83.0 – 86.9	D	63.0 – 66.9
B-	80.0 – 82.9	D-	60.0 – 62.9
		F	<60

Instructor's commitment

Students should expect from his or her instructor to be courteous, punctual, well-organized and prepared for lecture and other class activities. Furthermore, instructors should answer the proposed questions clearly; be available during office hours or notify the students beforehand if they are unable to keep them, and grade uniformly and consistently according to the posted guidelines.

Special needs

Students with any type of disability –physical, learning, etc. – should seek assistance from the Disability Support Services in the Ley Student Center in order to obtain official documents and submit it to his or her instructor. Such a situation will be dealt with on an individual basis.